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FRONT COVER: "Christmas Morning at the Tower of London." Photo by G. F. Allen

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MODERN MANAGEMENT

By Alexander Fleck (Chairman of I.C.I.)

Much of modern industry is today run by a new class of man—the professional manager. Unlike his predecessor, he owes his position not to ownership but to promotion by merit. There are both weaknesses and strengths in this system, which the Chairman of I.C.I. examines in a thoughtful essay in which the role of the trade unions is discussed.

This article is an extract from the Chairman's address to the Industrial Co-Partnership Association in October

IN the last fifty years there have been great changes in industry—far greater than any which took place in the previous hundred years and comparable only to those of the early Industrial Revolution, say from 1780 to 1820. From the point of view of management, the most important of these changes has been the increasing divorce of ownership from management. In 1900 the vast majority of industrial enterprises were directed and managed by those who substantially owned them. Today the contrary is the case. In practically all large concerns the directors have reached their position by promotion from the ranks of executive management and not by virtue of being substantial shareholders. Thus most of modern industry is directed, controlled and managed by a new class of man—the career executive—the professional manager.

Parallel with the decline in owner-managers has been a rapid increase in the scale and complexity of industry. Production used to be a craft and is now a science. The scale of operations is larger; the processes are more complicated; far greater technical knowledge is required; staffs are larger, better educated and less amenable to demands for unquestioning obedience; planning and control have to be more accurate; the division of labour is more sensitive; the technical and economic consequences of error can be more far-reaching; the burden of taxation is heavy; public opinion is vigilant and politicians are critical. All these make greater demands upon management—and top management in particular.

These two trends—the divorce of management from ownership and the increasing complexity of the management function—taken together have led to what James Burnham has called the managerial revolution. Whether in the long run this evolution—I think evolution is a more accurate description than revolution—will prove to have been a development for the better or for the worse it is too early to say. We ourselves are too much part of that process to be able to judge it objectively. But looking at it

subjectively we can already identify some of the weaknesses and some of the strengths.

What are the more obvious strengths? In the first place, the modern managerial system is more democratic—promotion shall be by merit and not by birth. The highest posts shall be open to all. The only test shall be that of ability. Every apprentice shall have a chairman's gavel in his tool kit. This means that in theory at least the ablest men should always get to the top, and consequently British industry should have the best leadership possible. It should also mean that managers should be more acceptable to those whom they manage, since all shall know that the opportunity is the same for all and that merit, not nepotism, is the path to promotion. But I wonder whether in practice the system works as well as this.

The weak link in promotion by merit is how to establish objective standards by which merit can be measured. This is a problem which has not been solved, for it is a very difficult one. In want of a solution it is easy for promotion by merit to relapse into promotion by seniority—the dismal ascent of dead men's shoes; or promotion by luck—"the right face at the right moment."

The second advantage which modern management should possess is a far greater technical knowledge than their predecessors. The technical nature of modern industry is obvious to everybody, but what appears to be less obvious to some people is that to manage and to direct a modern manufacturing concern it is necessary to have acquired a working understanding of the technology concerned. The question of what subjects a man took at school or university are far less important than what he has learned in later life. You can come to terms with the technology of your own industry without having a doctorate. Nor, incidentally, is the possession of a degree in the humanities any proof that the holder knows anything about human beings. Although we have the problem of technological education and training still very much on

our hands, I am satisfied that modern managers are technically abler and better qualified than they were fifty years ago.

The third advantage of modern management is that it has a greater sense of public responsibility and public accountability. This springs from two causes. The first is that by divorcing management from ownership the test of profitability becomes less keen. The continuity and the stability of the company becomes more important than the immediate maximisation of its profits. The modern manager is less interested in actual money-making than the old entrepreneur and more willing to take a longer and wider view of his company's interest.

Triple Trusteeship

The second cause of this greater sense of public accountability lies in the social and political ideas of our times, which differ greatly from those of the Victorians. The managerial director of today sees himself not only as a servant of his company, but also as a trustee for three interested parties—the shareholders, the customers, and the employees. He has a duty to all three, as well as a wider obligation to the community. I would suggest that his sense of triple trusteeship is a new and, I believe, desirable feature of modern management.

On the other side of the coin there are weaknesses latent in professional management against which we should guard. The first is a tendency towards conformity and an excessive adherence to precedent, for promotion in some organisations depends more on making neither mistakes nor enemies than on any positive accomplishment.

Fear of Taking Risks

The second is that not being their own masters, managers may develop a fear of risk-taking, whether it is in trying out a new method or launching a new product or simply expressing an opinion which is unpopular with their superiors. I wonder how far young William Morris would have got with his hare-brained schemes for making motor cars if he had been the dutiful servant of a modern corporation. Here the manager is at a disadvantage over the independent master. A manager is a member of a team with a hierarchy and therefore by nature of his position must subordinate his ideas to what is considered best for the organisation as a whole. This is obviously right, for unless it were done a state of internal anarchy would arise.

But, if we are to encourage initiative and risk-taking on the scale necessary for Britain to retain her position as a leading industrial nation, we must try to devise systems of promotion and reward for the manager which combine a reasonable degree of security with a real incentive to develop his more venturesome instincts. In the last

analysis the habit of initiative in a firm is developed or retarded by the example which the directors and the senior managers set. So if we as directors or general managers complain of lack of initiative on the part of our subordinates, we may find like Cassius that the fault is not in our stars, but in ourselves.

Still within the context of Industrial Management, I should like to say a few words about the trade unions. Just as the scope and character of industrial management have changed considerably in the last fifty years, so has that of the trade unions.

Nowadays we have grown so accustomed to the power and influence of the trade unions that it is difficult to imagine life without them. But fifty years ago many leaders of industry were not only able to imagine life without the trade unions, but were most anxious that it should be without them. Although the legal position of the trade unions had been secured by the Acts of 1871 and 1876, their fight for recognition by employers had not then been won. Many bitter fights lay ahead.

Realistic Attitude

Today the struggle for recognition is no longer a serious matter, for there is no real fight between employers and trade unions over membership. Most employers, as becomes good managers, are realists and have taken a realistic attitude towards trade unions, which may be paraphrased something like this:

"I do not think it matters whether in principle I favour the trade unions or not; the fact is that they are obviously here, and here to stay. So the sooner I get down to learning to live with them the easier life will be for all of us."

On the other side of the fence a similar attitude has been taken by many trade union leaders. As individuals they may in theory wish to see the abolition of private enterprise and the extension of nationalisation, but in practice they are willing to work with the system as they find it and do not concern themselves unduly with theoretical issues. I believe it is because in this country we tend to be practical rather than theoretical in our approach to politics and economics that it is possible to pursue a similarly moderate and, if you like, middle course in the politics of industry.

Thus both sides recognise implicitly that the individual worker can have two loyalties, one to his union and another to his firm, which, if they were pressed to their logical conclusion, would be incompatible with each other. In practice it is rare that the circumstances are such that loyalties have to be pressed to their logical conclusion, with the result that this dual loyalty makes a perfectly reasonable working arrangement. But it should not blind us to the fact that circumstances could arise in which these loyalties would become incompatible.

I think it important, therefore, that in our consideration of industrial management we should not confuse a practical similarity of interest between management and the trade unions with a basic identity of aims. They may hold much in common, but they are not the same. If they were the same there would be no need for trade unions. But I would suggest to you that trade unions are the natural and inevitable consequence of modern industry. The man at the bottom of the industrial ladder wishes for some method of dealing directly with the men at the top and of bargaining with them on equal terms. The trade union movement is simply the application to the industrial sphere of the old maxim of the American colonists: "No taxation without representation."

Functions of Trade Unions

In view of their new power, it is proper to ask what are the functions of a trade union in the conditions of 1954. The classical definition of the trade unions was given by Sidney and Beatrice Webb: "A trade union as we understand the term is a continuous association of wage-earners for the purpose of maintaining or improving the conditions of their employment." I would suggest that this definition holds good today. The purpose of a trade union—and a very legitimate purpose it is, too—is to maintain and improve the conditions of their members' employment. But what I think has happened since this was written, over fifty years ago, has been that opinions within the trade union movement have differed as to the means by which this should be secured. In the difference of means lies a whole spectrum of varying political and economic policies.

The decision which determined the means by which the T.U.C. would pursue this end was made at the Congress of 1928. On that occasion the Council maintained that there were three courses of policy open to the movement. The first was to go all out to overthrow the then existing order of society and to substitute revolutionary socialism for it. The main weapon was to be industrial disorder on every profitable occasion. The second course was to stand aside from the ordering of government and industry, "telling employers to get on with their own job, while the unions would pursue the policy of fighting sectionally for improvements." These two courses were rejected. The third course, which was recommended so strongly by Ernest Bevin and Sir Walter Citrine, was—and I quote the words, for they are significant, "for the trade union movement to say boldly that not only is it concerned with the prosperity of industry, but that it is going to have a voice as to the way industry is carried on, so that it can influence the new developments that are taking place. The ultimate policy of the movement can find more use for an efficient industry than

for a derelict one, and the unions can use their power to promote and guide the scientific reorganisation of industry as well as to obtain material advantages from that reorganisation." This was the policy which was adopted and has been followed by the movement ever since.

Just as in the first war, so in the second war the trade union movement had a big opportunity to show its statesmanship—on both occasions it took the opportunity. With Ernest Bevin as Minister of Labour the trade union movement was encouraged to take a wider interest and responsibility than that of bargaining on wages and conditions in the narrow sense. Their advice was sought and their co-operation enlisted on all major matters connected with the contribution of labour to the war effort.

The subsequent six years of the Labour Government consolidated the position of the trade unions. But the nationalisation programme threw into relief the need for a new approach by the trade unions and encouraged them to take both nationally and locally a broader interest in all industrial problems. Some of the more forward looking and, incidentally, the more politically moderate unions recognised that if they were to participate more in management it was necessary that they should first have a better appreciation of the problems involved. In consequence they embarked on a comprehensive programme of education, of which a good deal has been written in the press.

False Illusion

In some quarters it has been assumed that because these unions have been taking more interest in managerial problems they are therefore going to see management's point of view more easily and hence will be less hard to bargain with. It is certainly true that these unions are more reasoned in their bargaining; but it would be quite wrong to think that they are any less determined in their claims when they feel they are justified or any less solicitous of the welfare of their members. Some progressive employers seem to entertain the illusion that eventually the local district secretary will become a sort of supernumerary personnel officer, which is not only unlikely to the extent of one chance in a million but is very undesirable. The so-called moderate unions are only moderate in so far as they have abandoned ideas of revolutionary socialism and have learned to present their claims in a more reasoned manner. The suggestion that they have become "bosses' men" bears no relation to the facts at all and is, I suspect, mainly propaganda put around by rebellious and dissatisfied elements to discredit the moderate leaders.

This emphasis on education and the need on the part of trade union leaders to understand what management is doing is an important evolution in the character of British trade unions. While the size of the problems of unofficial

strikes and other manifestations of dissatisfaction on the part of some fraction of membership cannot be disregarded or dismissed lightly, this desire for understanding is a development of great importance. It can be considered as the unions' counterpart of the "managerial revolution." Under the new unionism collective bargaining remains as much bargaining as it has ever been, but it is collective bargaining carried out in a more reasonable and less militant manner. Claims are supported by facts and figures and not merely by threats and epithets. This new unionism is a development which those of us who remember what went before can only welcome as being an important step in the social and economic betterment of the people of this country.

All this brings problems to the modern manager which were unknown to his predecessor fifty years ago. Although many of the unions are skilled negotiators and reasonable men with whom to deal, none the less the fact is that the manager does have to take them into account, whereas fifty years ago he had to give little consideration to what the unions thought or to carry the unions with him in his policies for the works. For instance, I might compare the elaborate steps which are taken today to consult the unions before work study is introduced into a factory with what would have happened fifty years ago if the same work study had been introduced then. The power of the trade unions determines that a works manager can no longer be king of his own castle: he has become a constitutional monarch. There are those of us, even in the ranks of management, who prefer constitutional monarchs to absolute sovereigns!

Importance of Leadership

But apart from the influence of the unions, management must give far greater consideration to the feelings of the men on the job than was necessary fifty years ago. For one thing, we have had a long period of full employment in which the threat of dismissal has lost its terrors. All this means that a manager must be able to handle men and to get them to do things for him by acceptance rather than by dragooning.

I would therefore end by emphasising that, in spite of the increase in technology and in scientific methodology with which modern manufacture is undertaken, the heart and the core of good industrial management is, as it has always been, the ability to get people to work for you—or, as it has been said, the painless extraction of work. Wages, hours of work, conditions, amenities—all play their part; but in the last analysis it gets down to the character, the personality and the example of the people who lead the enterprise. This means good leadership, and the heart of good leadership lies in the two simple words: "Follow me."

THE ECOLOGIST

"THERE'S Blue Two," Terence Blank said, with all the enthusiasm of someone catching sight unexpectedly of an old friend. He handed me the field glasses. There, sure enough, among the covey of partridges scuttling off among the stubble was one bearing on its back a blue tab on which there was a black figure 2. "And Red One," Blank continued. "She's a veteran by partridge standards—we tabbed her three years ago."

Blue Two, Red One, and their untabbed fellows in the covey were all as familiar to Blank as his cows are to a farmer. He had watched them mating, hatching out families, feeding, escaping death narrowly several times a day. And not only this handful of birds but literally thousands of others, for as ecologist at I.C.I.'s Game Research Station the life and death of every partridge on 4000 acres of rolling Hampshire farmland are his concern.

An ecologist's job, he explained, is to study animals in their natural surroundings. The scientific management of the partridge being one of the Game Research Station's chief objects of research, the partridge forms Blank's chief quarry. He hunts it with three weapons: a telescope, which he can focus on a distant covey from a moving Jeep with almost nautical skill; field glasses; and nets, into which the birds are persuaded so that they may be picked up, examined, and if necessary marked with plastic tabs.

Observing birds through a telescope sounds a restful occupation. But as Blank talked about the different aspects of his job I began to think otherwise. It is a job that must go on in all sorts of weather, by day and by night. Night netting, for instance, said Blank, was quite a common practice. It was all right unless you were working in frosty weather, when you had to take your boots off and walk about in your socks so as to avoid startling the birds.

At three points in the year Blank is able to say—however unlikely this seems—how many partridges there are on the 4000 acres over which the Research Station operates. In March, September and December, with an assistant and four keepers he takes a complete census of the partridge population. It is not only an exhaustive but an exhausting process, which means walking 25 miles a day for three or four days, putting up the birds systematically and counting them as they fly. There is a smaller count in August, when the proportion of young to old birds is determined from a sample area.

Blank's knowledge of the private life of partridges in his 200-acre "special study area" is amazingly detailed. One cock partridge 50 yards away he will recognise from its tab as a notorious bigamist who has been living with two hens for several weeks. A hen with a pink tab he points out as being a flighty young thing who changed mates four times in six weeks before finally settling down. He can even cite cases of a pair of birds forcibly adopting—kidnapping, in other words—the young of another pair.

What does it tell you, all this counting and tabbing and peering into the domestic life of the partridge? I asked Blank this obvious question. "The facts and figures the ecologist supplies," he said, "help the Station to evolve new game management methods. Take this tabbing business . . ."

Blank gave one example of how tabbing had shed new light on a problem that has puzzled many keepers: what happens to the large number of adult partridges that disappear between September and March? Do they die, or do they emigrate to other estates? By tabbing coveys in September and observing the marked birds over a period of years the Station found that apart from 40% that were bagged in the normal course of shooting, 46% had died or were missing, believed dead, 12% were known to have left the estate and 2% remained alive on the estate.

This illustrates well the very high "turnover" that exists in any normal partridge shoot. The "died or believed dead" figure of 46% is a formidable one, and much of the Station's effort is directed to reducing it. The worst enemies of partridges are their natural enemies, with hawks heading a long list of vermin that prey on first the nests, then the young birds and then the adults. The Station never ceases to preach the virtues of good keeping, and practises it with great efficiency.

An ecologist, for all his scientific preoccupation, sees the tragic side of a partridge's life better than anyone. As we walked through the stubble fields, and covey after covey ran for the hedges, Blank said "Shooting time is rather a sad time for me. I've watched these birds since they left the nest; I've seen them surmount all their little fears and troubles, and now they'll probably be bagged." But, as he also pointed out, it is a lucky partridge that eludes its natural predators for more than a couple of years.

M.J.D.

Terence Blank



Information Notes

MY TIME IN AMERICA

By Donald Gordon (Head Office)

Four years' working in America, both on the plant and later in an office, left Donald Gordon with certain very definite ideas on the difference between the American attitude to life and our own. What he says may not be new, but he puts it with convincing freshness.

I SPENT nearly four years in America. I arrived in October 1950 sweltering in English tweeds—knowing nothing about the American climate—and returned in May 1954 shivering in a tropical suit—having forgotten about the English one.

Between those dates I worked, as an alien so to speak, for three American companies—a chemical company in Baltimore, Maryland, an engineering firm in New York City, and an oil company, also in New York. My time was interestingly divided between working actually in their various plants and office work.

Since I have been back a lot of people have asked me “What’s it like over there?” or, more simply, “What are they like?” Well, here, begging Alistair Cooke’s pardon, is “Another Man’s America.”

By now you are probably tired of hearing that your opposite number in the Baltimore chemical plant, for instance, owns his own home, drives his own car and is fully equipped with refrigerator, washing machine and television set. You will be relieved to learn that it is more often than not the mortgage company’s house, the loan society’s car, and some or all of the rest is being bought on the “never-never.” Americans use the “never-never” to a degree that scared the life out of me—and in spite of the pretty stiff terms, a third down on a house being normal.

Does this make the American’s “high standard of living” a castle built on sand? Obviously, if you were laid off, with payments on a house and a car to meet, you would be very definitely pushed—and a lot of people were pushed during last year’s recession in the States. But the American is not frightened by this possibility, does not even think of it, because he quite honestly feels himself entitled to all these worldly goods, and in fact the whole economy is based on the assumption that he will buy them—on the “never-never.” And the wage scale is such that there is room in most family budgets to meet a regular little hornet’s nest of monthly payments.

I found my American co-workers, not only management but the chaps on shift in the plants, remarkably well versed in a simple truth that is something of a slogan over there: “The more we produce, the better we live.” If you suggested to an American worker that he might work himself out of a job by overproductivity, he would look at you in blank astonishment. The fact of the matter is that his mind functions along other lines: raise production, lower costs, make more goods available for more people (on the “never-never”), increase the demand—and up goes production again. The interesting thing is that the average chap is keenly aware of all this. It is about the most exciting thing about working in America.



... you are probably tired

(To digress: I shall never forget the expression of sheer horror that came over the face of a vacuum cleaner salesman when my wife offered to pay cash. It seems that by doing so we would throw his firm’s entire accounting department into despondent chaos. We finally relented and gave him two cheques—a down payment and the balance due. The “never-never” is quite a thing in the States.)

This, I felt, was the most noticeable thing about the American worker—his fascination and pride in the economic workings of his country. However fuzzy his thinking, he always emerges with the belief that it is production that gives him his high standard of living, of which he is intensely jealous.

Here, of course, we come to the catch. For it is the appearance of this whole apparatus of production, advertising and selling that so shakes the visitor when he first comes to the States. The price, in fact, of a high standard of living. (The American, mark you, thinks it is fair enough—if he thinks about it at all.)

To me at least, the inescapable advertising by radio, television, billboard, magazine, newspaper and neon sign was appalling. I felt it was almost a violation of the traditional

privacy of the home. The American, however, takes it all as a matter of course, even developing a sort of automatic immunity, so that he becomes both deaf and blind for the duration of television and radio advertisements.

The curious thing is that, whether or not he develops immunity, any American will defend bitterly the system which requires all this sales promotion. In the first place, he will tell you, you have to create the demand for the huge production, and that takes advertising. In the second place, anybody who is decent enough to bring you Jimmy Durante, Mario Lanza and Bob Hope, all on one programme, deserves to get a word or two in himself for his troubles. (The truth of the matter is that companies like du Pont or General Motors, who provide the really spectacular variety shows on TV, are models of decorum in their advertising. It is some shocking little type with a shilling cigarette lighter to sell that is really unbearable.)

This brings me to the American himself. In spite of appearances, he is the most conservative type in the world. His clothes, after all, are largely a product of his climate, which is one of extremes. Those hectic red check shirts (I have two) are wonderful when it is about minus 20, and I was all in favour of their summer informality when my New York office

was a steamy 98. But there are no Teddy boys in New York, no floral waistcoats, no hand-painted ties even, nowadays. No, the biggest surprise in store for anyone who stays in America for a long time is their conservatism. There is still a Victorian flavour to much of their home entertainment; they are great churchgoers, great “do-gooders,” in the best possible sense, in their communities. (In the oil company I was with, one chap’s wife got polio: his fellow workers promptly raised the funds for a house for them, and then built it with their own hands in their spare time—a lovely place, all on one level, specially designed and fitted so that the wife could run the entire show from her wheelchair.)

If I can mention anything on the debit side after that, it is the factory atmosphere. There is no such thing as not talking shop; vast numbers of people talk very little else. There is rather a lot of “keeping up with the Joneses,” even by the standards of English suburbia, and many things are professionally laid on which we—rightly, I think—regard as the province of the amateur and the individual in the way of sport and recreation. Though if you want to be ruggedly individual you can do a lot worse than follow President Eisenhower to Colorado, and “go west, young man.”

THE STORY OF HUMAN SKILL

“Man is a tool-making animal,” said Benjamin Franklin, the American statesman, in 1778. And here under the somewhat forbidding title “A History of Technology” is Vol. I of the story of the development of human skill, compiled by Dr. Charles Singer in 800 pages. This is Dr. Singer’s own account of the purpose of his work.

How did men live before they had any metals? How came they to discover metals, and how did they begin to work them? How did weaving begin, and cooking, and pottery? Who first thought of wheels, and why? What led men to think of domesticating animals, and why did they first choose such fierce beasts as wolves—for the dog, a kind of wolf, was the first to be tamed—or oxen, which are very dangerous in their wild state? And, perhaps the greatest and oldest puzzle of all, how did men begin to communicate with each other by speech and then to associate with each other in ever larger groups, until at last they formed empires governed by laws? How did men first come to draw pictures, and again how came it that pictures, used at first to convey messages or information, were at length replaced by alphabetic writing—one of the greatest of all technological devices?

These are among the countless fascinating problems that the history of technology seeks to solve. It is a new study and it has not had time to solve them all; but it has solved many, and is on its way to solve more. The first volume of *A History of Technology* gives the solution of some of them.

I would like to assure the more timid that though this first volume looks very formidable, the editors have constantly sought to make it as straightforward and easy to read as

possible. It contains the fewest possible technical terms, all of which are explained. A clear, simple style has been aimed at. No scientific training beyond a little elementary chemistry and physics is assumed, and most of the chapters can be read without even that knowledge. Every effort has been made to illustrate the text adequately.

Indeed, the search for appropriate illustrations and their preparation have been a main editorial task. Besides a number of simple maps and tables there are about 600 illustrations, nearly all specially drawn. Not a few are from beautiful works of art, and they have become works of art again as interpreted by artists who have a real feeling for the originals.

Something should be said as to what we mean by technology. It is not easy to define this word, but for our purposes it means *how* things are done or made, together with some consideration of *what* things are done or made. The subject must therefore include both the ordinary things of ordinary life—pots and pans, cloth and leather, tools and weapons, food and drink, and so on—and the ways of using them. Nor can it ignore consideration of works of high skill and art: such as portraits and statues, palaces and temples, and the furniture, equipments and clothing of kings, nobles and priests of old.

Nowadays we think of technology, whether it be the making of plastics, the blending of metals, or the mass production of the common things of life such as forks and spoons, sponges, detergents, motor-cars, typewriters and the rest, as the outcome of scientific inventions and based on scientific knowledge. It is, however, a quite new thing—only about a century and a half old—for technology to be based on science. Instead of technology being the child of science, it would be nearer the historical truth to call science the child of technology.

To understand this matter rightly we must have a time scale. Man has been on this earth for about 500,000 years. Perhaps he did not begin to speak in the proper sense until about 100,000 years ago. He did not domesticate the dog to aid him in his hunting until about 12,000 years ago. He did not begin to cultivate the soil until about 10,000 years ago. He did not live in towns until about 7000 years ago, knew nothing of pottery until after 6000 years ago, and did not gather together in large numbers until about 5500 years ago, when began the period of the so-called "ancient empires."

Of these empires the best known, and those of which we have the most to say, are Egypt and Babylonia, but there were a number of others. By about 500 B.C. these ancient empires were breaking up and becoming replaced by aggregates of another type, of which the best known were the classical empires of Greece and Rome. Here our first volume breaks off. Greece, Rome and the Middle Ages are considered in Volume II, most of which has now gone to press. But 500,000 years is quite enough for one volume, even one as large as this.

Though science has brought innumerable new methods and techniques, even a glance at the illustrations of some ancient

works in this volume will convince anyone that human skill has hardly advanced at all in historic time. Long before metals were known, long before plants were cultivated or animals domesticated, before pottery was made or writing invented, marvellous dexterity was shown in the making of flint tools.

Moreover, ivory and bone carvings made with stone implements show how masterly was the control of their materials by the craftsmen of the Stone Age. And after the invention of metals, while men had still no fuel but charcoal and no way to create a blast other than the simplest valveless bellows, beautiful and intricate works of art of gold, silver, copper and bronze were produced, the craftsmanship of which could perhaps not be equalled and certainly not surpassed today.

Lastly, on the purpose of these volumes. They are intended as a contribution to general education. Ours is a technician's age, and it is inevitable that in our schools, colleges and universities an increasing proportion of students should apply themselves to those subjects which are most likely to lead to a livelihood. They are

therefore liable to pass lightly over the humane, literary and historical subjects which make life most worth living and are therefore the most truly useful. These volumes will, it is hoped, do something to remedy this situation.

They will, we hope, give to all who will take the trouble to read them an insight into the wonderful history of the rise of civilisation. They tell something of the new knowledge of the past which is being uncovered almost daily and is as impressive as and more easily intelligible than the grand discoveries of science. They aim at giving a more balanced view of life, of man's rise in his world, and of his place in it.



A cave painting of before 10,000 B.C. representing honey being collected from a nest of wild bees

FUEL FOR FIRE-FIGHTING

By Elwyn Jones (Nobel Division)

Since all fire needs oxygen, the addition of more fuel to an inflammable fuel/air mixture can sometimes lower the proportion of oxygen to a point where the mixture is no longer inflammable and thus be an unexpected ally in the battle with fire and explosion. Here is an account of how this chemical paradox is turned to practical advantage.

MOST of us have at one time or another found to our dismay that when the domestic fire burns low, reckless addition of fuel is liable to extinguish rather than revive it. Again, when the fire burns too briskly, we smother it with dross. Thus experience has taught us that, strange though it seems, fire can be quenched by adding fuel to it. We find this knowledge useful in the home, so why not in the factory?

Now, flame is largely burning gas. Solid fuels like wood or

coal burn by first decomposing into gas, which is expelled and catches fire as it mixes with the air: this is why the flame of a match is so much larger than the match itself. But if such inflammable gases are allowed to mix with air *before* the flame is kindled, the spread of flame through the mixture may be so rapid as to cause an explosion. This is what happens in an internal combustion engine.

When burning, all fuels combine with oxygen, so that to

produce flame and explosion there must be a sufficiency of both inflammable gas and oxygen. Different fuels consume different amounts of oxygen, and this appetite for oxygen is both their strength and their weakness. Given plenty of oxygen, the voracious fuel generates enormous power, for good or evil; but if the supply of oxygen runs short, it is quick to feel the pinch.

Petrol is a typical greedy fuel, the high-grade quality (high-octane) consuming no less than $12\frac{1}{2}$ times its own volume of oxygen. Because it needs so much oxygen, and because only one-fifth of atmospheric air is oxygen, we must not inject too rich a mixture into a petrol engine; if we do, it will not explode. In fact, if there is more than 6% of petrol vapour in the mixture, flame suffocates for want of oxygen. Besides, when two or more fuels are present in the same gas mixture they must all burn together or not at all. So we see that a greedy fuel can very easily smother not only its own flame but also that of any other fuel it associates with.

In this type of fuel, therefore, we have an unexpected ally in the battle with fire and explosion: we have only to introduce some of this into a fuel-air mixture and we immediately render the mixture non-inflammable. We can, as it were, hoist fire with its own petard because by adding the fieriest of fuels we destroy the very possibility of fire.

How, then, can we exploit this situation? Obviously the best place is in those chemical plants where the risk of an explosion is inherent in the process. We cannot hope to cover all such industrial processes in one short article, but there are two groups which are of particular interest, namely catalytic oxidation processes and the manufacture of explosives.

As an example of the former, let us take the catalytic oxidation of methyl alcohol to formaldehyde, a process carried out in some I.C.I. factories. This process requires one volume of oxygen for every two volumes of methyl alcohol, and since only one-fifth of atmospheric air is oxygen, we shall need five volumes of air to two of methyl alcohol. Thus two-sevenths, or 29%, of the mixture should be methyl alcohol. The explosion limits for methyl alcohol and air are 7 and 37%, so we see that our correctly balanced mixture falls right inside the explosive range. Consequently if we use the ideal mixture we run the risk of an explosion.

In this particular case we are fortunate in that the addition of another 10% of methyl alcohol puts us outside the danger zone. By doing this we lose a little efficiency and we have the extra expense of recovering the excess methyl alcohol, but that is a small price to pay for safety. The solution is not always so easy to find, but we have here a possible remedy for even the most difficult cases, namely the introduction of a small proportion of an oxygen-greedy fuel. Such an inhibitor would not affect the balance between the real reactants, and so interference with the economics of the process would be a minimum.



... strange though it may seem

Now, methyl alcohol actually contains some oxygen already, and this raises the question of how to deal with chemical substances which contain enough oxygen in themselves to be independent of outside sources like the atmosphere. This is where we enter the realm of commercial explosives like gunpowder, cordite, nitroglycerine and the like.

The most violent and destructive is nitroglycerine, and, like the others, it owes its explosive nature to the fact that it is a very complex chemical compound which can be made to disintegrate into a large number of much simpler products. Actually the products are largely carbon dioxide and steam, the normal products of combustion of all fuels, including the food we burn in our own bodies.

Have we not already noticed that coal, another complex chemical substance, has to be broken down into simpler things like gases before combining with oxygen to form carbon dioxide and steam? In the ordinary way coal is not an explosive because we regulate the supply of air in our grates and furnaces and so control the fire, but mix coal *dust* with air first and you have the cause of many mine disasters; mix it with liquid oxygen and you have a high explosive to rival nitroglycerine.

Nature's repertoire is very limited, but because she varies the tempo we think she is playing different tunes. Fundamentally, the presence of oxygen in the fuel does not alter the problem one whit.

This discussion would not be complete without a word about the use of water. If we try to light a fire with wet sticks we shall almost certainly fail, because it takes a lot of heat to drive off the water, and this has to happen before we can reach the ignition point of wood or coal. While there is water present the temperature will not rise above the boiling point of water, and there is no commercial fuel, or even explosive, which will ignite at this temperature. So striking is this effect that the expression "damp squib" has become a byword.

If water is so remarkably effective, why look further? Water is cheap, plentiful, almost always procurable and, above all, non-inflammable. By all means use water wherever and whenever possible; but, excellent though it is, it has its limitations.

Water is a poor mixer where fuels and explosives are concerned, and while not itself inflammable it can in a fire create inflammable gases; the hydrogen and carbon monoxide in our domestic gas are actually produced at the gasworks by passing steam through a coke fire. For the same reason we were advised during the war not to use water on an incendiary bomb: water is 89% oxygen.

Evidently, then, we need other and if possible more powerful weapons than water in the fight against fire; and in choosing those weapons we would do well to remember that, in closed systems like the majority of industrial plants, the oxygen-greedy fuel can be a powerful ally.



... cause of many disasters

Garden Notes

By Philip Harvey

Illustrated by Bruce Petty

FOR most gardeners December is a month when they can afford to take things more easily. It is not, in my experience, a good month for planting herbaceous perennials or rose trees, as the soil usually lacks the warmth of October or November. If, therefore, you have omitted to plant in early autumn, wait until March, especially if the soil is on the heavy side.

Fruit trees do, however, demand some attention as regards pruning. Ideally this job should have been tackled a month or so earlier, but no sensible gardener ever works entirely to the calendar.

Pruning often worries beginners, and even after reading up the subject in a gardening book they may still be confused. This is understandable; authors usually begin by stating that hard and fast rules cannot be laid down. They then proceed to make various recommendations—usually in considerable detail—and the reader is finally still undecided how it all fits in with his own Cox's Orange Pippin or Conference pear.

By all means read up pruning in the textbooks, but I strongly advise you to enlist the co-operation of a friend, whether professional or amateur, who is an experienced and successful grower. It is just the same with rose budding. Neither operation is easy to describe clearly in print, as there are always a few tips one discovers when actually on the job.

It may help you if I make a few general points.

First, hard pruning. Is this advisable or

not? On the whole, no. The modern view is that annual hard pruning of rose trees is detrimental, and with apples—especially on young trees—excessive cutting back usually stimulates heavy growth of wood and delays cropping. You must, however, prune apples and pears each year to maintain a regular supply of good-quality fruit.

Plums can be left largely to their own devices (unless grown on walls), and you need only remove dead, overcrowded and diseased shoots after picking. Winter pruning of plums is best avoided, as the silver leaf fungus, a disease to which the well-known Victoria and Czar are very prone, attacks the trees from early autumn to spring.

Newly planted apple trees are best pruned after planting. Cut back the leading shoot by two-thirds of its length and reduce the laterals to about six buds. Pruning of all fruit trees and bushes must, of course, be completed before winter washing with tar oil or DNC petroleum, otherwise growths destined to be removed later will be sprayed to no purpose. I assume, however, that you are going to be really up to date and apply a BHC spray such as 'Sybol' in early spring instead of a winter wash. Spring spraying certainly works out cheaper, whether you have five trees or five thousand!

I mentioned earlier that in December you could afford to be lazy. But a brief respite from physical labour need not mean that you forget the garden. Railway enthusiasts—or should I say fanatics?—find the ABC or

Bradshaw just as stimulating reading as a Dorothy Sayers detective story, and gardeners will read the latest seed catalogues (which usually arrive in December) with just the same fervour.

Reading about gardening gives one all manner of ideas for improving the garden. If you are making a new one—perhaps your very first—horticultural books and magazines will give endless suggestions, the majority quite sensible and practical. There are, however, several fundamentals which can easily be overlooked.

Do not be in a hurry. This advice may sound rather trite, but a really first-class garden cannot be created quickly. It must develop slowly and always be subject to modifications in the light of experience.

Choose your plants because they appeal to you personally and not merely to fill up space. Planting by stages means that each plant will go eventually wherever you really want it, otherwise second-rate plants may be taking nutriment from the soil which would ultimately be absorbed by the flowers, fruits or shrubs that you definitely prefer.

Always allow each plant plenty of room. A good general rule is to plant the same distance apart as the height. Some authors advise closer planting, arguing that weeds are smothered and no soil is visible.

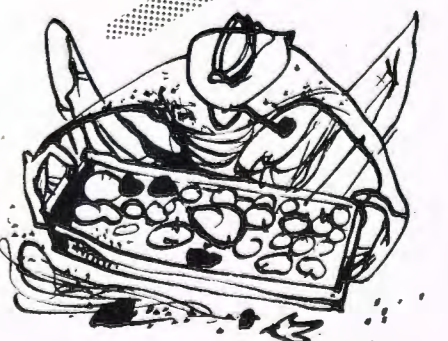
I suggest taking this doubtless well-meant advice with the proverbial grain of salt! Chickweed, groundsel and other curses of the garden—not to mention bindweed curling

round the stems of perennials—are rarely, in my experience, deterred by close planting. Further, what on earth is the objection to a few bare patches of soil? They at least provide a quiet contrast to the masses of colour provided by annual or perennial flowers.

A very small garden will definitely look bigger if you plan the layout so that everything can be seen at once. Keep fruit, vegetables and flowers apart from one another. Vegetable crops require deep digging and plenty of manure for first-class results, whereas fruit tree roots may be damaged by deep digging. Nor are heavy dressings of farmyard manure essential for top-quality fruit. Cordon and dessert pyramid fruit trees take up less space than standards and come into bearing more quickly.

Gardeners are very conservative when it comes to choosing plants for hedges. Privet is admittedly easy to grow anywhere, but there are many far more colourful shrubs which are equally adaptable. *Berberis stenophylla* has showy golden yellow flowers in late April or early May and is evergreen. Plant this 18 in. apart in a single row or 1 ft. apart and staggered.

As a rose enthusiast I am probably biased, but I can assure you that the crimson-scarlet floribunda Frensham is perfect for hedging if planted about 2½ ft. apart. Like all roses it is, of course, deciduous, but the flowers come in unbroken succession from late May to early November and are admirable for cutting.



CURLING

By John Dewar (Head Office)

Curling shares with golf and whisky the distinction of being a world-famed export from Scotland. Here a curling enthusiast describes the game.

CURLING is the national winter sport of Scotland. To speak of it as bowls on ice seldom fails to annoy the enthusiast, but there is a basic similarity between the two games for all that.

There is much doubt about the origin of curling, just as no one knows with certainty where and when golf began. The most commonly accepted view is that it was brought to Scotland by Flemish emigrants who settled there in the fifteenth century, but this has been hotly contested by other authorities who insist that the old continental game (*kluyten*) was very different from Scottish curling. The well-known Flemish painting "Winterscape with Skaters" by Peter Brueghel (1530-69) nevertheless shows men in the foreground playing a game remarkably like a crude variety of curling. Whether it began in Scotland or not, the sport has been known there for at least four centuries, and it is to Scotland that it owes its development.

Originally the players used boulders from the hillsides and from the beds of streams (hence the old name *channel-stanes*). The stones were of all shapes and sizes, and some of the earliest ones weighed over a hundred-weight. They were unfashioned by man except that hollows for the fingers and thumb were sometimes scooped or bored out. Two interesting specimens, one of which is inscribed 1511, may be seen in a museum in Stirling. Later on, players started grinding and polishing the soles of their stones, and then rough iron or wooden handles were fitted on the top. Hewn round stones were unknown before the end of the eighteenth century.

Modern curling stones are fashioned by craftsmen from granite and other hard materials. Most come from

Mauchline in Ayrshire. Unfortunately suitable stone is becoming difficult to find, and some of the greatest favourites (such as Ailsa Craigs) are almost unprocurable. The maximum weight allowed today is 44 lb., heavy stones being preferred for indoor play and much lighter ones for use on natural ice. To an enthusiastic curler a good pair of stones, each identical in shape and weight and not varying in performance, is a precious possession.

The only other piece of personal equipment needed is a brush (*kowe*). Nowadays a household broom is used, but long ago players simply cut a suitable branch from a nearby gorse bush. No special clothing is needed as a rule, but rubber-soled shoes help the players to move quickly and safely on the ice.

The part of the ice on which a game is played is called the *rink*. Two spots (*tees*) are marked 38 yards apart by scraping or with paint, and round each *tee* are drawn a circle of 7 ft. radius and usually two or more smaller concentric circles. Play in the first round (*end*) is from about four yards behind one *tee* towards the other *tee* and then back again for the second *end*, and so on. The object is to get the stones as near as possible to the *tee*, and every stone belonging to one team that finally lies nearer than any of the opposing stones counts a point



INDOOR CURLING at Richmond, near London. In the two matches in progress on the right, stones are about to be sent on their way towards the distant *tees*, where the captains of the teams—known as *skips*—are giving directions.

(*shot*). The length of a game is prearranged—a fixed number of *ends* (say 11) or a definite period of time (say 2½ hours). The winning team is that with the higher total of *shots* in the match.

If a stone is played too gently and fails to cross a line (*hog-score*) seven yards short of the *tee* to which it is directed, it is declared a *hog* and is immediately removed from play. Similarly, if a stone is played too firmly or is subsequently hit by another stone and crosses a line (*back score*) seven feet behind the *tee*, it is also out of play.

A team (also confusingly called a *rink*) consists of four players, each having two stones. In a typical match the toss of a coin decides which side is to play first, and then the *lead* of that side takes up position to play his first stone. He obtains a firm stance by using an iron plate (*crampit*) or by placing a foot in a hollow cut in the ice (*hack*) or—most popular in modern indoor play—by putting a foot

on a small brass device also known as a *hack*. His captain (*skip*) is at the distant *tee* holding his brush at the spot to which the *lead* must aim, showing him by sign, or by placing a duster, where the stone should finally rest, and by signs or words telling him how to play the shot.

The second and third players, brushes in hand, are on either side of the line of play about eleven yards away in the direction of the *tee*: when the stone reaches them they run alongside it, alert for the *skip's* instructions about sweeping (*sooping*). When that stone has come to rest, the opposing *lead* plays his first stone, and in due course the two *leads* send off their second stones. After them the second players have their turn, the vacant sweeping positions having been taken up in the meantime by the *leads*. And so the game proceeds: the third players and finally the *skips* play their stones, the former usually directing play in the absence of the *skips*.



A TENSE MOMENT. One skip seems worried about the progress of a stone (not shown). His opposite number is much happier.

Under good playing conditions, such as one nearly always gets in an ice rink, the act of propelling a curling stone along the ice is not a feat of strength: it is a delicately controlled operation. Styles vary, but the essential things are a smooth back swing and an equally smooth forward swing in the arc of a circle, with the stone quietly gliding on to the ice. It is a common practice for the player then to slide along with the stone for a few feet before releasing it.

In bowls, the "wood" does not move in a straight line but the bias causes it to curve. Similarly, in curling most shots curve (*draw*) to the right or to the left, particularly as they begin to slow down. This is because the player imparts a spin (*handle*) to the stone, making it *draw* to the right if a clockwise turn is induced (*in handle*) or to the left if anticlockwise (*out handle*). This effect of rotation on the motion of a curling stone was unknown until 1800, and like many other revolutionary ideas it was at first strongly condemned.

Sweeping has always played an important part in the

game. Originally required to keep the stone's pathway to the *tee* clear of snow and other obstacles, it is nowadays also used on ice which is quite clean. The effect of such sweeping is twofold: a slow-moving stone can be induced to move a greater distance, and the *draw* imparted by *handle* is reduced. The *skip* has to decide exactly when sweeping is needed and must give his instructions clearly ("Soo!" "Up brooms!" "Never a kowe!"). A sweeper doing his job properly has to work pretty hard exerting pressure on the ice by brushing rapidly close to, and in front of, the moving stone.

The *skip* is undoubtedly the most important member of a *rink*. His word is law and must never be questioned. He is the strategist and calls for specific shots to meet the needs of the situation. The variety is infinite, and only a man of wide experience and sharp intelligence can adequately fill the role. His directorship and individual performance must command the respect of his *rink*, and

he must have the qualities of a general, able to rally his men in times of stress.

Until early in the nineteenth century curling could be played only in really cold weather when ponds and streams were frozen. Then it was discovered that good playing conditions could be obtained during moderate frost by spraying a flat surface such as a pavement very lightly with water.

This meant that curling became possible much more often during the winter. Artificial ponds of this sort were constructed all over the country, club-houses were built beside them, and, since much of the play was in the evenings, systems of lighting the rinks were installed.

Something still more revolutionary came from England.

The first indoor ice rink was constructed in London in 1842, to be followed by the building of large ice palaces in Manchester (1877) and then in Southport (1879), where indoor curling was introduced for the first time. Several towns in Scotland now have magnificent ice rinks where skaters, ice hockey players and curlers share the facilities. Thousands of men and women enjoy curling every week of a long winter season quite independent of the weather conditions, and the sport has prospered accordingly. As the editor of *The Scottish Curler* wrote recently: "The degree of proficiency now reached is probably higher than at any time in the history of the game in Scotland."

A most important event was the foundation in 1838 of an association of 28 curling clubs to make standard rules and regulations and to arrange matches and competitions. In 1842 Queen Victoria and her Consort were initiated into the mysteries of the game on the polished floor of the drawing room of the Palace of Scone, and from that date the association has had royal patronage and has been called the Royal Caledonian Curling Club.

In Britain today there are roughly five hundred affiliated clubs grouped on a geographical basis in areas; and for this purpose England is regarded as a county of Scotland, being associated with seven others in the south-west area! There is another grouping into 36 provinces, each consisting of six or more clubs in a circumscribed area. The First English Province has twelve clubs, mostly near Manchester but with the

youngest one at Richmond, London. Clubs vary in size from a dozen or so members in a country village to many hundreds in the Scottish towns where there are ice rinks.

Curling is enjoyed by rich and poor alike, and all differences in social rank disappear on the ice and at gatherings associated with the game.

The bond in the brotherhood of curlers is a natural and spontaneous one, but it is made all the more secure when each novice appears before a "curlers' court" to become a "made" curler. The initiation ceremony is secret and at times strenuous.

Early in the nineteenth century a party of Scottish emigrants packed a number of pairs of curling stones among their belongings and settled in eastern Canada.

They introduced the game to their new land and it quickly became very popular. Scarcity of stones was an acute problem, however, until this was solved by using kettle-shaped implements made of iron instead. "Irons" (of greatly improved design) are still to be found in the eastern provinces, but elsewhere the traditional stones from Scotland are in general use. Canada had 1231 affiliated clubs with a membership of 73,993 players in 1953, and 30,000 spectators attended the Canadian championships at Edmonton in March 1954. These figures give clear evidence of the popularity of the game in the Dominion.

Curling has been played in America for over a century, and although there are fewer players south of the 49th Parallel the devotees are no less enthusiastic, as is clear when international teams come to Scotland. The records show 18 clubs in New Zealand and 46 in Sweden; and no doubt the game will spread rapidly in Norway, where it was introduced early this year.

The Swiss too were quick to appreciate the appeal of curling, and most of their winter sport resorts now offer the game as an alternative attraction to ski-ing. At first play was confined almost entirely to holidaymakers (mostly

British), but many Swiss are now enthusiastic and skilled performers. Curling in glorious sunshine on keen, clear ice high in the mountains means for many a person the most perfect of holidays. Would that one could afford it oftener!



SOOPING, or brushing the ice in front of a lag-gard moving stone to coax it nearer the tee



NATIVITY CARVINGS 800 YEARS AGO

By the Editor

Little artistic work has survived from the Middle Ages, for the simple reason that nearly all art of this period was of a religious nature and so much of it was destroyed under Henry VIII as a result of the Reformation—a destruction which continued right down into Cromwellian times. In fact, the art that has survived is mainly of a kind that could easily be hidden away, such as the hand-painted illustrations to the Lambeth Bible reproduced in our Christmas number last year or small carvings such as those we reproduce on these pages.

What impresses people today about many of these survivals from the Middle Ages is not only their antiquity and splendid state of preservation but also their extreme beauty. The whalebone carving reproduced in detail on the opposite page is one of the very great treasures of the Victoria and Albert Museum. It is only fourteen inches high. Its abstract style strikes one as almost modern in conception. But in fact the style is typical of the twelfth century, particularly in so far as the Virgin and Child are presented on a larger scale than the attendant kings in order to emphasise their relative importance.

The use for which this relief was made can only be guessed at. Probably it was an ornamental piece designed to be set in the cover of a manuscript. Experts think this is more likely than that it was made as an object of veneration itself.

The Nativity scene depicted on the next page is from Germany. It is one of a series of ivories made at Cologne illustrating scenes from the life of Christ. The whole set was almost certainly designed as an altar piece. The reliefs are carved in walrus tusk stained with purple, and the one reproduced here is eight inches high. The Virgin lies on a mattress within the walls of the city of Bethlehem with the Child beside her in a manger. St. Joseph is seated to the right, and above are the star of Bethlehem and a worshipping angel. Outside the walls the angels announce the birth of our Lord to the shepherds.

Our thanks are due to the Victoria and Albert Museum for permission to reproduce these treasures, which were acquired by the Museum in 1866. They are from the Webb collection. Ivory, walrus or whalebone carvings of the twelfth century are, quite apart from their beauty, extremely rare and have almost priceless value, since they come on to the market so seldom.



THE ADORATION OF THE MAGI, detail from a twelfth century English whalebone relief.



THE NATIVITY AND ANNUNCIATION TO THE SHEPHERDS, one of a series of scenes from the life of Christ carved at Cologne in the twelfth century from walrus ivory stained with purple.

I.C.I. NEWS

SIR WALLACE AKERS

WE deeply regret to announce the death on 31st October of Sir Wallace Akers, C.B.E., D.C.L., F.R.S., who retired as I.C.I. Research Director at the end of April last year.

Mr. J. L. S. Steel, Group A Director, writes:

The news of Wallace Akers' death at the comparatively early age of 66 came as a shock to his friends and brought with it a sense of grievous personal loss. It seems so short a time since the day he retired from I.C.I. at the height of his mental powers and filled with the unbounded physical and mental energy which had characterised his whole life.

I first met him when I joined Brunner Mond in 1922. He had then been with the company eleven years, and in that relatively short period he had won recognition as its outstanding technical manager. He was a physical chemist by training—one of the first which Oxford produced—and he applied his academic knowledge to the problems of an old-established industry with consummate success. There were few aspects of the ammonia-soda process which he did not illumine, and few parts of the plant which he did not modify and greatly improve.

He was a prodigious worker and would sit up till the small hours reading and writing. One report of his particularly illustrates his powers of analysis and constructive thought. It bore the not very inspiring title "The Utilisation of Steam from Waste Process Liquors," but it is a classic of its kind. In it he showed an unrivalled capacity for elucidating crucial data from a welter of technical figures of varying accuracy and for applying to these data the principles of thermodynamics with clarity and effect. The practical results of this work may be seen today in factories throughout the world.

In 1924 he left Brunner Mond to join the Borneo Company, and was with them as general manager in the Far East for some years before returning to the chemical industry as a technical manager in the recently formed I.C.I. In 1931 he was appointed delegate chairman of what is now the Billingham Division, and in 1941 he was elected to the Board of I.C.I.

Shortly after the outbreak of war he joined the government service and was appointed head of the Directorate of Tube Alloys—the code name given to the atomic energy project in the United Kingdom. From that time until the end of the war

he was rarely seen by his friends of pre-war days. He moved from centre to centre in England, guiding and controlling research and development work on this intensely secret project, and flying again and again to Montreal and Washington.

After the war he returned to I.C.I. as Research Director and remained to guide research in the Company until he retired in 1953.

Intensely occupied as he was with his work, he would always find spare time to help his colleagues with friendly advice. His wide experience and his kindly tolerance encouraged all who knew him to go to him for counsel.

His range of outside interests was extraordinary. He was a musician of distinction, and a fine pianist until an accident to his hand prevented the necessary practice. Few of his friends, however, could share, or even appreciate, the pleasure which he took in reading the score of a Russian opera at breakfast time on occasions when the morning paper turned up late!

He was a keen yachtsman in his earlier days and to the end was a most popular member of the Royal Thames Yacht Club. A most "clubbable" man, there was nothing he enjoyed more than a quiet dinner with one or two friends with accompanying table talk. No one could feel that the art of conversation was in danger of dying out if he had the privilege of dining or supping with Wallace Akers. The talk would range over travel, literature, art, science or politics, and in each field he would produce a variety of knowledge and experience which was always stimulating and never dull.

Perhaps one of his most delightful and lovable characteristics was the way in which he would help those who were by nature shy and diffident. He would always bring out the best from them, making them feel at ease and wholly happy in his company.

He was a modest man and shunned publicity. Honours and distinctions came to him unsought. He was knighted for his wartime services, and honorary doctorates were conferred on him by the Universities of Durham and Oxford. He had the rare distinction for a man whose life had been mainly passed in industry of being elected a Fellow of the Royal Society.

But the thing of which, I think, he was most proud was his appointment as a trustee of the National Gallery. Here he could apply his scientific knowledge to the preservation of the things of beauty which he loved.

CHEMICAL MANUFACTURERS STUDY I.C.I. SAFETY METHODS

Nine out of ten of the accidents that occur to I.C.I. workers today could equally well happen in the house; only one in ten is attributable either to chemicals or to the process being worked. This was one of the facts brought out when more than 450 delegates to a week-end safety conference organised last month by the Association of British Chemical Manufacturers visited Billingham and Wilton to study I.C.I. safety practice.

The Association holds a safety conference every two years. Previous conferences have been given up entirely to papers on safety and their discussion; but it was decided this year to

Officer) and J. Gardner (Central Safety Department), had been responsible for the detailed arrangements for the visits.

Dr. Faulkner described the improvement in the accident frequency rate at Billingham and how this had been achieved. He pointed out that while there was still room for improvement in the physical layout of working places and in the installation of safety devices, it was becoming more and more obvious that the emphasis had got to move from even safer devices to safer ways of working: from an "it can't happen to me" attitude to an "it is not going to happen to me" attitude.

Dr. Cockram said that at Wilton they believed that work in a chemical factory could be as safe as in the best factory in any other industry. Their special problem was that in starting up new plants large numbers of men with little or no experience of a chemical works had been engaged; teaching them the safe way of doing a job had required much slow and patient work, and a considerable part of it had been accomplished through works councils and plant safety committees.

At a dinner given by I.C.I. to the delegates at the Hotel Majestic at the outset of the conference, Dr. G. I. Higson, Billingham Division Chairman, presided, and the principal speakers were Mr. W. J. Worboys, Commercial Director of I.C.I. and chairman of the A.B.C.M., and Mr. E. A. Blench, Billingham Division Production Director.

Proposing the toast "The Association," Mr. Blench said that safety work could be regarded as of the real essence of industry. In its work industry used the scientific, natural and human resources of the country. One had to have a humanistic as well as a scientific approach, and what better example of that was there than the safety officers?

In his reply Mr. Worboys said that as industrialists they must be concerned about humanity as well as materials. On the humanity side they wanted to minimise suffering, and on the materials side they wanted to use all that was to hand as efficiently as possible.

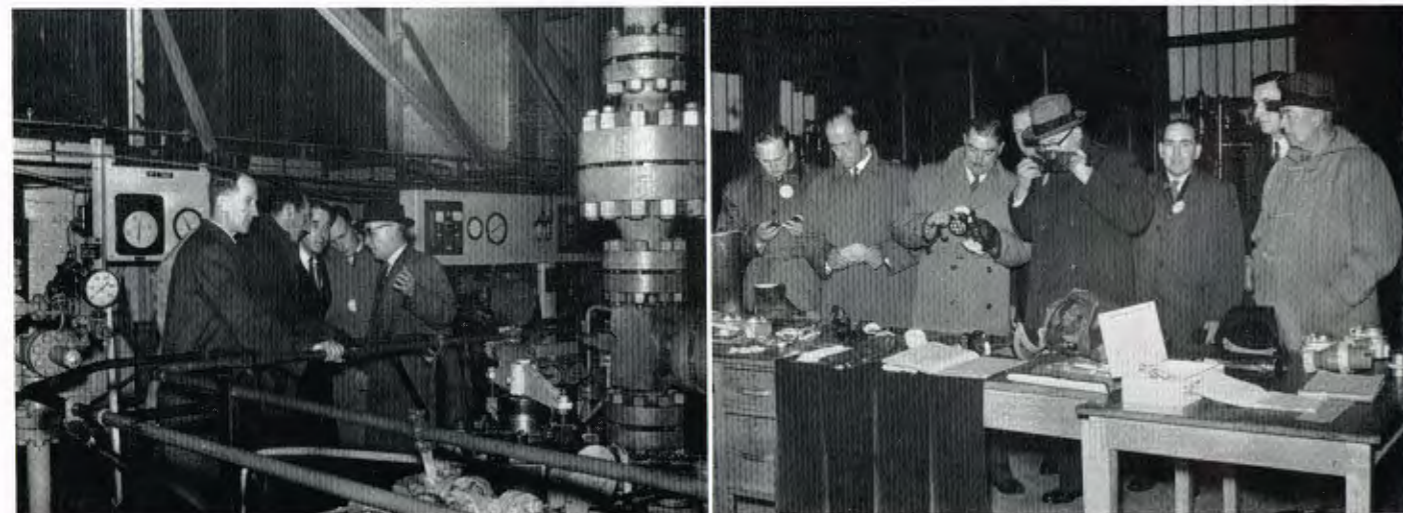
"Safety is something you have to think about and to which you must have the right attitude of mind for every one of the 365 days in the year," he said. "We require not only skilful, vigorous and determined management, but the full co-operation of the workers."



Mr. W. J. Worboys (right) with the Mayor of Harrogate and Dr. C. Cockram at the A.B.C.M. Safety Conference

make a change, and the Association accepted I.C.I.'s invitation to visit the two factories from the conference headquarters at Harrogate.

Before their visits to Billingham and Wilton the delegates were addressed by Dr. I. J. Faulkner, Ammonia Works manager at Billingham, and Dr. C. Cockram, Olefine Works manager at Wilton, who, together with Messrs. J. D. Deverell (Billingham Safety Officer), R. H. Hall (Wilton Works Safety



Left: Mr. J. F. Weedon, Synthesis Plant Manager, guides a party from the safety conference round the Billingham carbon dioxide plant. Right: Protective appliances on view at Wilton power station are inspected by another party of delegates.

FIBRES GROUP NEXT YEAR

On 1st February next year a new Group of the Company will come into being. To be known as Group F (Fibres), it will be in the charge of a Fibres Director. Mr. P. C. Allen has been appointed to this post and will relinquish his appointment as Paints and Plastics Director.

The new Group has been created because of I.C.I.'s extensive and increasing interest in man-made fibres. The Fibres Director will be responsible to the Board for the 'Terylene' Council and for furthering the research on, development, manufacture and sale of man-made fibres, particularly 'Terylene' and 'Ardil.'

HEAD OFFICE

Mr. J. C. Scobie Retires

Both I.C.I. and the paper trade lost an outstanding personality with the retirement on the 30th September of Mr.



Mr. J. C. Scobie

J. C. Scobie, whose tall, lean figure was a familiar one in every Division of the Company.

Mr. Scobie's career may well be described as forty years of purchasing, for when he first joined the Nobel Explosives Company in 1914 he was placed in the Purchasing Department—known then as the Raw Materials Department—and from that day until his retirement he had been associated with buying from one aspect or another.

A founder member of C.P.D. on its formation in 1927, Mr.

Scobie soon made his connection with the department even closer when he married Miss Dinwoodie, who at that time was secretary to the first Controller of Purchases, Mr. L. H. Swinbank.

Although Mr. Scobie has handled many commodities, he has become best known as buyer of woodpulp, paper and board, on which I.C.I. spends several million pounds a year. The esteem with which he has been held by his associates in the trade was illustrated when a luncheon was given in his honour at the Savoy Hotel on 31st August this year. This luncheon was organised and attended by men whose names are known nationally in the U.K. pulp and paper trade, and the highlight of the proceedings came when Mr. Scobie was presented with a solid silver salver suitably inscribed.

Mr. Scobie has the true Scot's devotion to golf, and no doubt will now give his time to an unhurried study of the geography of the many golf courses near his home in Surrey by way of preparation for his annual pilgrimage to St. Andrews.

ALKALI DIVISION

Victorious First-aiders

In the twelfth annual first aid and diagnosis competition organised by the Casualties Union in October, a team from Alkali Division won first, second and third places in the three awards competed for. They won the Diagnosis Trophy, gained third place in the First Aid Trophy and second place in the Buxton Trophy, which is awarded to the team with the highest

aggregate of marks. The Alkali first-aiders failed to win the Buxton Trophy by a very few marks, being narrowly defeated by a team from Hull Docks, who occupied second place in both the other awards.

The two members of the Diagnosis team were S. Cornwell (Silvertown Works) and W. R. Hall (Wallerscote Works). The first aid team was G. H. Gandy (Avenue Works) (captain), W. F. Griffin (Winnington Works), C. McNeill (Winnington Works) and G. W. Forster (Lostock Works). W. C. Raby (Fleetwood Works) was the reserve.

The competition attracted such a large entry this year—96 teams in all—that regional qualifying rounds had to be held, 25 teams from all parts of the country eventually attending the final at Pinewood Film Studios in Buckinghamshire.

Last year an Alkali Division team made competition history by being the first team ever to win all three premier awards.

DYESTUFFS DIVISION

'The I.C.I. Regiment'

Several members of Dyestuffs Division were among the troops of local Territorial Army regiments which lined the royal route when the Queen, accompanied by the Duke of Edinburgh, visited Manchester and Salford during their two-day visit to Lancashire in October.

Pouring rain for most of the day did justice to Manchester's reputation but did not damp the enthusiasm of the onlookers or those on duty. In Salford, troops of 574(M) H.A.A. Regiment R.A. (T.A.) lined the route on each side of the road fronting the dais on which Her Majesty and the Duke met the Mayor and Mayoress and other civic dignitaries. This Salford Territorial Army Regiment was formerly designated the 7th Battalion Lancashire Fusiliers—one of the premier regiments of the British Army. 574 H.A.A. Regiment is sometimes



Major E. F. Thompson and Captain B. D. Mitchell of the W.R.A.C. (left and third from left in front) were among Hexagon House "Terriers" who lined the royal route

known as the I.C.I. Regiment in the Manchester and Salford area because of the number of Dyestuffs Division personnel who have served or are serving in it.

Among those people from Hexagon House who were on duty were Major E. F. Thompson and Capt. B. D. Mitchell of the W.R.A.C. and Major G. E. Yeomans, R.A. (T.A.). Miss Thompson, the W.R.A.C. adviser with 574 Regiment, is the supervisor of the Teleprinter Services, Home and Overseas Typing, and Burroughs ledger machines in the Distribution Centre; Miss Mitchell, a chemist in the Pigments Section of Dyehouse Department, specialises in radar for the T.A.; and Mr. Yeomans, who is a battery commander with the regiment, is on the staff of Overseas Sales Department.

Sea Cadet visits London Regatta

Mr. John Lyon, an apprentice instrument artificer at Grangemouth Works who has just completed the first year of his apprenticeship, took part in the Sea Cadet Corps national regatta in London on 25th September. He is a very keen member of the Grangemouth Unit of the Sea Cadets—in which he holds the rating of Petty Officer—and has been a cadet for over three years. He is most enthusiastic about the work of the Grangemouth Unit, which belongs to Zone 4 in the Cadets Scheme. Zone 4 covers the whole of the Firth of Forth Area. John likes sailing best, but he says it is very easy to take a pride in ship handling, and he is trying to improve his signalling.

The trip to London—John's first visit to the Metropolis—was an exciting experience for him and his colleagues, and they were put up at the cadet headquarters at Surbiton on an island in the Thames. Seven crews entered for the three-quarter mile pulling race, and although the Grangemouth crew was eliminated early, John Lyon feels the experience was well worth while. Now that they know the standard which has to be attained, the Grangemouth crew are confident that they will do much better next year.

BILLINGHAM DIVISION

Synthonia Success in Floodlit Soccer

Synthonia Club resumed its floodlit soccer matches this season with a notable 4-0 victory over an army all-England amateur team on 25th October.

Formed by the army to help with the building of a strong Olympics team, the All-England XI included players from well-known amateur and professional clubs, such as Tottenham Hotspur, Pegasus, Hendon, Wycombe Wanderers and Southall. The team had previously played only one game—against a Civil Service XI—and the decision to take them to Billingham resulted from the success of Synthonia's previous floodlit matches with representative service sides.

Because of the understanding which existed among the Billingham players they were always a little better in the first 45 minutes, but the margin of superiority was so small that the half-time score of 0-0 was a fair one. It was a different



Irvine Johnstone (right), Synthonia full-back and captain, greets S/Sgt. C. Noek, captain of the Army All-England Amateur team

story after the interval, however, for Synthonia proved the fitter team, and they wore down the army XI to such effect that they scored three goals within six minutes.

Lieut.-Col. G. J. Mitchell, of the Army Sports Control Board, accompanied the army team, and he was so pleased with the game, and with Synthonia's performance, that more matches with important service sides may follow.

Bird with a Geordie Accent

An Indian mynah bird, which answered questions gruffly and with a marked Geordie accent, was among the 720 birds exhibited at the annual show of the Synthonia Club's cage bird section.

Many of the birds entered were more familiar: budgerigars and canaries were well represented, and Mr. E. Jeffs of Billingham Main Time Office exhibited no fewer than fifteen



Visitors to the Synthonia cage-bird show question the "Geordie" mynah bird

different varieties of British birds. They included a nuthatch, a yellow wagtail, a wheatear, a whitethroat, a ring ousel and a fieldfare.

The winner of the cup for the exhibition with most points was Mrs. C. M. Owen, wife of the Anhydrite Mine underground manager. Mr. Jeffs, who presented the cup to the section, was runner-up.

Billingham Men in Guard of Honour

Five Billingham Division employees were among the seven members of P Battery, No. 377 Locating Regiment, R.A. (T.A.), who were in the guard of honour which greeted the Queen when she began her tour of County Durham at Gateshead.

They were Captain R. I. Silsby, who recently moved to Olefine Works at Wilton from the Organic Research Section of Research Department; Battery Sergeant-Major L. Lockwood, of the Main Time Office; Sergeant P. Gallogly, of Gas and Power Works Boiler Section; Sergeant L. Fegan, of Services Painters; and Bombardier V. Smith, who is also in Services Painters.

Captain Silsby is second in command of the battery, which has its headquarters at Norton Drill Hall, and the others are all members of the radar troop which is commanded by Captain J. A. Cooper, who is in Technical Department.

They were among the guard of honour on duty at the Gateshead end of the Tyne Bridge and were thus the first unit to welcome the Queen to Durham.

LEATHERCLOTH DIVISION

Bowler's Double Triumph

In October Mr. Bernard Kelly, a Post Room messenger at Hyde, became the first man in the history of the £400 Waterloo



Mr. B. Kelly

Bowls Handicap to win the tournament two years in succession. Last year at Blackpool he beat Harry Taberner 21-19; this year, a finalist from 1000 competitors, he beat Arthur Holden by the same margin.

"It was Kelly's greencraft that enabled him to beat Arthur Holden," wrote "Touchwood" of the *Manchester Evening Chronicle*. "Usually a 25-30 yards expert, Kelly actually stretched out fully into the corners to clinch his great win over Holden, who, five ends before the eventual finish, stood

for game with an excellent pair. Kelly beat that pair 16-19 and then ran out. The Hyde bowler in turn lay for game also with a good pair, but his 63-year-old opponent played a really good wood which saved a chalk (20-19). A fair lead in the home left-hand angle landed the £100 first plus silver cup for Kelly in completing a record Waterloo double in successive years. This record may never be repeated, for the handicap generally seems too much in the second year. In all three games yesterday and, in fact, in nearly all the rounds Kelly came from behind to win. That, coupled with tactics, stamps the Hyde bowler as the best Waterloo victor since the war."

METALS DIVISION

Diamond Wedding

September 1st was a great occasion in the life of at least one Metals Division pensioner, Mr. A. S. Bowers, for it was on that day sixty years ago that he married Miss B. M. Morgan in St. Jude's Church, Wolverhampton.

At that time Mr. Bowers was a relative newcomer to the staff of John Marston's (later to become part of the Marston Excelsior group), but he was to have a long and distinguished



Mr. and Mrs. A. S. Bowers, who celebrated their diamond wedding in September

career there. In 1918 he and Sir Charles Marston were appointed joint managing directors; when Sir Charles retired three years later, Mr. Bowers took on the double responsibility of managing director and chairman, and it was from the position of chairman that he retired in August 1933.

Ladies to the Rescue

During the 1952-3 season the Elliott dominoes team were having a very thin time, losing match after match in their local league fixtures. With the idea of giving the men a little practice between league matches, some of the lady members of the social club got together and decided to form a ladies' dominoes team. After a bit of campaigning, they managed to raise the required number of ten players.

The practice matches were so successful that after some notable victories over their male opponents the ladies decided to launch out, and in February 1953 they played their first match with a local team of men. Since then they have played about thirty matches, scoring some very good wins over local champions. In fact, they have now played all the teams in the Selly Oak and District League and in spite of occasional reverses have always come back again for more.

Perhaps their most spectacular achievement to date has been to beat the 1953-4 league winners—the Elliott men's team—in a battle at the social club which resulted in a score of 8-7. As a result of this performance the ladies' team has now been invited by the secretary of the Selly Oak and District League to enter a team for the 1954-5 season.

That there is no lack of enthusiasm among the ladies is proved by the fact that playing members now number 17. The section has its own committee, headed by Mrs. Maylin.

NOBEL DIVISION

Soccer Team loses to Billingham

Although the Ardeer soccer team were beaten 7-1 in the inter-Divisional game with Synthonia at Billingham on 18th September they were by no means disgraced.

Younger and less experienced than the Billingham side—which included Bill McQuarrie, a Scottish amateur international who was formerly with Queens Park, John Kidd, a Cambridge soccer blue, and three other players who have appeared for their respective counties—Ardeer held their own throughout the first half with a display of football in the traditional Scottish style.

Synthonia, who are one of the fastest teams in the Northern League, opened strongly with attacks on the right wing, where Kidd was in brilliant form, and it was from one of these that centre-forward Waller opened the scoring after ten minutes.

Ardeer fought back and came near to scoring in three determined raids, and then Kidd made another opening from which Waller scored a second goal for the home side after 25 minutes.

This was followed by renewed attacks by Ardeer, for whom Laik and Fry were particularly dangerous on the left, and they were unlucky to be two goals down at the interval.

They restarted with more strong raids and were rewarded in the 55th minute when the ball came over from the left to be neatly turned into the net by inside-right Crawford. The next ten minutes saw Synthonia again on top, and when they scored three goals in less than three minutes, from Kidd, Waller and inside-right Dixon, much of the fight was knocked out of the visitors.

They continued to play clean, attractive football, however, and even when the score had been taken to 7-1 by Waller and outside-left Walsh they brought applause from the crowd with determined attempts to reduce Synthonia's lead.

PLASTICS DIVISION

I.C.I. Caterers learn Cooking in the Field

One hundred and fifty members of Plastics Division lunching at Black Fan Road canteen one day in October were quite

unaware that the entire menu—Scotch broth, beef hot-pot, roast beef with potatoes and cabbage, fried fish and chips, stewed apples and custard—had been cooked in the open air and some of it in old metal drums.

The lack of adverse comment was the best reward the nine men and women who cooked the lunch could have had. Drawn from the catering departments of Billingham, Paints, Metals, Alkali and Plastics Division and Head Office, they had spent two days being trained in emergency feeding. The course was the first to be organised by Head Office Catering Section under the I.C.I. Civil Defence scheme. Later, courses will be held at Witton, Ardeer, Billingham, Runcorn and Winsford, and by 1957 it is planned that the majority of the staff from every I.C.I. works and office canteen will have a working knowledge of emergency feeding methods. The instructors will be members of I.C.I. catering departments who are well versed in field cooking, and the scheme is under the general supervision of Mr. R. L. Stinton of Central Labour Department.

The Welwyn course began with the preparation of a cooking site on open ground at the back of the Black Fan Road canteen. Using scrap materials—chiefly bricks and metal drums—and clay from the site, the trainees first built items of cooking equipment which would need to dry out before being used: a kettle trench, an insulated kettle trench, and a drum oven using salvaged 40-gallon drums.

The second day was spent in drying out the drum oven and insulated kettle trench, constructing a grease trap, improvising a hot water boiler and washing-up sinks and erecting permanent camp equipment.

The lunch was cooked between 8 a.m. and noon on the third day. Only one mishap befell it. The weather turned from rainy to windy, and the apple tart which had been planned as the pudding literally went with the wind, since no one could devise a method of holding down the flour long enough to make it into pastry.

The women among the "pupils" earned a particular word of praise for taking the rough and strenuous work in their stride and the success of the whole exercise augurs well for the ability of I.C.I. caterers to cope with any emergency.



Left: Building a drum oven during emergency feeding training are Mr. R. L. Stinton (Central Labour Dept.), Miss I. F. Denny (Paints), Miss J. Urquhart (Plastics), Mr. W. J. Willmoth (I.C.I. Chief Catering Adviser), Mrs. L. Brown (Billingham) and Mr. S. Crowther (Plastics). Centre: Mr. R. A. McCafferty (Plastics) shows Miss Urquhart how to install a chimney. Right: The oven goes into action.



The I.C.I. team and their International visitors after the inaugural match for the John Paterson Memorial bowls trophy at Welwyn

Hillhouse Tenor fills the Breach

When the man who was to play the male lead in Thornton Cleveleys Amateur Operatic Society's production of *Maritza* met with an accident the producer hunted desperately for someone to fill the part at ten days' notice.



Mr. B. Groos

Some of the society's officials who work at Hillhouse thought of Mr. Bastiaan Groos of the Maintenance Section, whom they knew to be a leading member of the Blackpool and Fylde Light Opera Company. They decided to ask him to take the part. He accepted, and when the show was staged ten days later he was word perfect. *Maritza* played to near-capacity audiences for a week at the Queens Theatre, Cleveleys.

Mr. Groos, a tenor, is a native of Rotterdam and the grandson of a former Berlin State Opera tenor soloist. He was a member of a light operatic company in Holland and also of the Royal Dutch Choir. At one time both he and his English wife were professional ice skaters.

John Paterson Memorial Bowls Trophy

Except for the quality of the opposition, it appeared on the Plastics Division Bowling Club fixture card as just one of numerous matches arranged for the 1954 season: "September 25th—I.C.I. v. Internationals." In purpose it signalled something much more than a bowls match, for it marked the inauguration of the John Paterson Memorial Trophy.

The name of John Paterson, in charge of I.C.I. Pensions Department, London, at the time of his death, constitutes a strong link between I.C.I. and the English Bowling Association; he served both selflessly and faithfully, and in both spheres held the respect and esteem of his colleagues as a gentleman and a sportsman. An international bowler of repute, he represented his country on seven occasions, and in 1946 had the honour of captaining the England team.

The proposal for a trophy commemorating John Paterson

came from Mr. Alan Gawler, Plastics Division chief accountant, vice-president of the Herts County Bowling Association and captain of the Division Bowling Club, who found ready and sympathetic response in the Company's reaction to the proposal.

The idea of making it an I.C.I. v. Internationals match came from Mr. S. A. Crawley, past president of the English Bowling Association, who offered to take a team of internationals to Welwyn for the first of the trophy games.

Among them were many who had known John Paterson well, on and off the green. The I.C.I. team comprised six rinks drawn from Plastics Division and Paints Division (Slough and Stowmarket), captained by Alan Gawler. Not surprisingly, the challengers won by the comfortable margin of 142 shots to 94, in a game which by no means disgraced their less experienced hosts and which rewarded the many spectators by its exposition of skill.

Presenting the trophy at the reception afterwards, Mrs. Paterson spoke of the pleasure and pride she took in the instituting of this permanent testimony to her husband's memory, and of the comfort she derived from her many friendships within the spheres of I.C.I. and the English Bowling Association.

Plastics on Display

About 200 people were present at the Tea Centre in London when Lt. Col. Alan Wilkinson, President of the Institute of Incorporated Practitioners in Advertising, opened the Plastics in Advertising and Display Exhibition organised by the Division.

The exhibition, the first of its kind ever to be staged in this country, showed how the sign-maker can use 'Perspex' and 'Darvic' rigid p.v.c. sheet for making both outdoor and indoor signs. There were large signs, such as the ones for Pepsi-Cola and Watney's beer, that were illuminated inside, some with tungsten lighting, some with cold cathode lighting, and many others that were edge-lit. Apart from the commercial signs, the exhibition was rich in examples of novel 'Perspex' and 'Darvic' displays illustrating the peculiar optical properties of acrylic resin and the colour and ease of fabricating p.v.c. These created great interest and were examined closely by designers and fabricators.

Two extremely fine aircraft models in 'Perspex,' built to scale and internally illuminated, attracted much attention. A full-scale washing machine in 'Perspex' also caused comment,



A fish motif made in 'Perspex' fluorescent sheet on show at the Plastics in Advertising and Display Exhibition

and so did a locomotive and motor car. Many fine specimens of embedded work were shown, including a range of trout flies and small tools in crystal-clear acrylic resin.

Throughout the period of the exhibition a colour film was shown which presented some hundreds of 'Perspex' signs in situ, at home and abroad.

I.C.I. (INDIA) LTD.

Long Service Award for Chairman

At the annual dinner held in London for staff on leave from India, Pakistan, Burma and Ceylon, Dr. Alexander Fleck



Mr. W. A. Bell and Sir Bernard Pratt, both former chairmen of I.C.I. (India), with Dr. Alexander Fleck and Mr. N. D. Harris, present chairman of I.C.I. (India)

presented a 27 years' long service award to Mr. N. D. Harris, chairman of I.C.I. (India).

Two former chairmen of I.C.I. (India), Mr. W. A. Bell and Sir Bernard Pratt, were present at the dinner.

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HOLIDAY COMPETITION

Our competition for holiday articles again attracted a large number of entries—52 in all. The winners are Miss Joan Brown of Distribution Department, Salt Division, who wrote about her holiday in Majorca, and Mr. Claude Bigg of Northern Ireland Sales Office, who wrote about his holiday in Donegal. Both these articles fulfil in ample degree the first requirements of a good piece of magazine copy, which is to excite the reader's interest at the beginning and to hold that interest to the end. The two winning articles, in spite of the fact that they are about very different types of holiday, have another thing in common in that in both of them the writer has shown his interest in people rather than in things and places. This means that the holiday comes to life through the people met with rather than through a recitation of places visited and described.

Apart from the two winners, one other article submitted in the competition has been accepted for publication, and that is the account written by Mr. P. J. M. Aston (Alkali Division) of his visit to Yugoslavia.

These three articles stood out clearly from the others. The other articles submitted were in varying degrees fun to read because the people who wrote them had so obviously enjoyed their holidays; but they were mostly more a personal record than a magazine article. It is essential in an article to catch the atmosphere and imprison it in the printed word, and I would ask any unsuccessful competitor who may be thinking of competing next year not to forget this point. But to one and all I want to say thank you for having gone to the trouble of writing the articles and submitting them.—EDITOR.

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OUR NEXT ISSUE

In the last few years there has been a striking increase in the number of houses in towns or near towns where enterprising owners are growing climbers such as the wistaria, cotoneaster or clematis. There can rarely be few homes which could not be the more attractive for one of these plants, and an article has been specially prepared for the *Magazine* with colour illustrations concerning their choice and management.

This colour feature follows a leading article by Mr. E. A. Bingen, Joint Overseas Director, on our overseas interests. His article was originally planned for the current issue of the *Magazine* but yielded pride of place to the Chairman's article on modern management. Mr. Bingen reviews our overseas interests, which now account for the huge turnover of some £160m. a year.

Our next feature has been contributed by British Nylon Spinners and is a light-hearted survey of the nylon stocking situation—a field in which nylon reigns supreme, unchallenged by the newcomer 'Terylene.' Finally we wind up with an amusing article by Mr. F. M. S. Harmer-Brown recounting a railway journey as fantastic as an Emmett train.

MITZI

THE STORY OF A DACHSHUND AT HOME

By A. W. Baldwin (Dyestuffs Division)

IF you should find yourself at an agricultural show, ankle deep in slush in the teeming rain, and your wife and daughter choose to go all gooey over a dachshund puppy, take avoiding action at once. You will find that you have not the strength to resist their demands that you purchase the creature—then and there.

That is precisely why a female quadruped, with a pedigree as long as her body, with black velvety back and tan gaiters, with eyes like blobs of brown oil, edged occasionally by most expressive whites, and a general expression like Crown Prince Rupprecht, is now the undisputed head of my household. Her official name is Fräulein von Schniffenpanzer Spiegelschlosse or something, but we just call her Mitzi. She has enough skin to clothe two ordinary dogs—it goes into innumerable folds and creases like Dad's pants on little Willie—a row of double chins and practically no brain.

We have read all the books on dachshunds and listened to all the experts and can only conclude that Mitzi is—well, different.

Take diet, for example. Like all the dogs I ever had, she has nothing but contempt for the proprietary dog foods which, according to the advertisements, seem to send Alsations and Labradors insane with pleasure. She just sneers at them, and when a dachshund sneers—brother, you've got something! I will back Mitzi to out-sneer any sales manager you care to nominate. But to come back to diet. Disdainfully ignoring the sort of stuff that dogs are supposed to lash into with relish, she is prepared to rub along with anything we are eating plus a few odd items of her own choosing. Her favourites are lamb chops, chocolate sundae, chips, Russian salad, fresh green peas, and the *Journal of the Society of Chemical Industry*. The latter was, as you would expect, an acquired taste. It happened like this.

My wife observed that Mitzi liked nothing better than to engage in a tug of war with the *Manchester Evening News* through the letter-box, herself at one end and the

newsboy at the other; the latter young citizen did not seem to dislike it either. When Mitzi had won, as she invariably did, she was happily surrounded with confetti which my wife found very tiresome to read. She has now ordered the boy to knock and has promised him a thick ear if he shoves the paper through the letter-box. But she cannot threaten a Civil Servant with physical violence. So the postman gaily slips the *J. Soc. Chem. Ind.* through the box, and Mitzi, uttering the most fearful canine oaths, tears the daylights out of it in five seconds flat. I have to use the library copy or rely on what the chaps tell me.

Her behaviour with a bone proves what I said about brain earlier on, if proof were needed. It is quite obvious that the varmint likes a fresh, juicy, meaty bone very much indeed, so much so that possession of one will drive her to dim-witted distraction. Should my wife or Judith give her a bone, with the usual feminine nonsense and nauseating baby talk they reserve for their pets, the dog immediately goes certifiably daft. Not with pleasure but with anxiety.

First, she walks round the kitchen, looking distinctly neurotic with a large bone sticking out on each side of her foolish face. Then, on being let out in response to her bone-muffled whines, she promptly buries it in a flower bed. Within five minutes she has dug it out again, coated with soil and saliva, and some time later I will find it in *my* bed!

Of course, we bought her a fine new basket. She took to it with great zest at once and was soon in the habit of diving into it, either to take cover or to retire. It was then that I observed that she was a very poor judge of distance. She either landed up half-way over the far side with a formidable leap or, making a hopelessly short guess, caught herself a crisp wallop on the jaw which knocked her silly, or across the stomach which gave her hiccups. She put me in mind of a horse called Turkey Buzzard who used to cause despondency among the racing fraternity owing to his uncertain performances over the sticks.

Dachshunds are supposed to be demon guards, and if you were to call on us one evening when we are all at home you would certainly believe Mitzi was doing her stuff according to the book. On hearing your ring at the bell she will dash into the hall making a filthy row, and if you are so rash as to cross the threshold she will make a murderous attack on you unless restrained. We have not lost a visitor yet; but have had to be pretty nippy on occasions.

On the other hand, suppose we were out and lent you a key to let yourself in. You would not hear a sound, and you would finally come upon Mitzi regarding you gravely from the security of her basket or round the corner of the banister. So help me! When I first discovered this trait I was disgusted, and said so. But my wife informed me scornfully that I had it all wrong. It seems that the reason for all the fuss and palaver when we are all at home is Mitzi's intention to put us in good heart and give us confidence. When she is guarding the house alone she becomes the silent, stealthy killer.

They say that dachshunds are very obedient, and one must agree that Mitzi will frequently do as she is told unless she has previously made up her mind to do something entirely different. Judith claims that she has taught Mitzi to sit at the word of command, and I must confess that, after yelling at her until the veins stood out on my forehead, I have occasionally persuaded her to sit. On the other hand, she may have flopped down through sheer boredom. But I have noticed that one is only successful in this trick if Mitzi is standing on a thick carpet or a nice woolly rug. Should she be standing on concrete or flagstones all orders, however firm, would be in vain. She will not sit on cold lino—nay, not for Dr. Fleck himself.

You are not supposed to smack dachshunds or even speak to them harshly; it discourages them and makes them introspective. I have been quite sharply rebuked on more than one occasion for addressing Mitzi with what was considered unnecessary brusqueness. But I notice that when there is horseplay afoot—I do not know how you behave in your home, but there is a distressing amount of horseplay in ours—Mitzi needs no invitation to join in. She bites anything—literally anything she can catch hold of—and during the course of the scuffle takes buffets and clouts until she is practically punch drunk without showing any signs of depression.

The lady who sold us Mitzi said, in reply to a question from Judith, that dachshunds could produce three or four puppies a year. For several weeks after that I detected a calculating gleam in my daughter's eye—a sordid, commercial look it seemed to me.

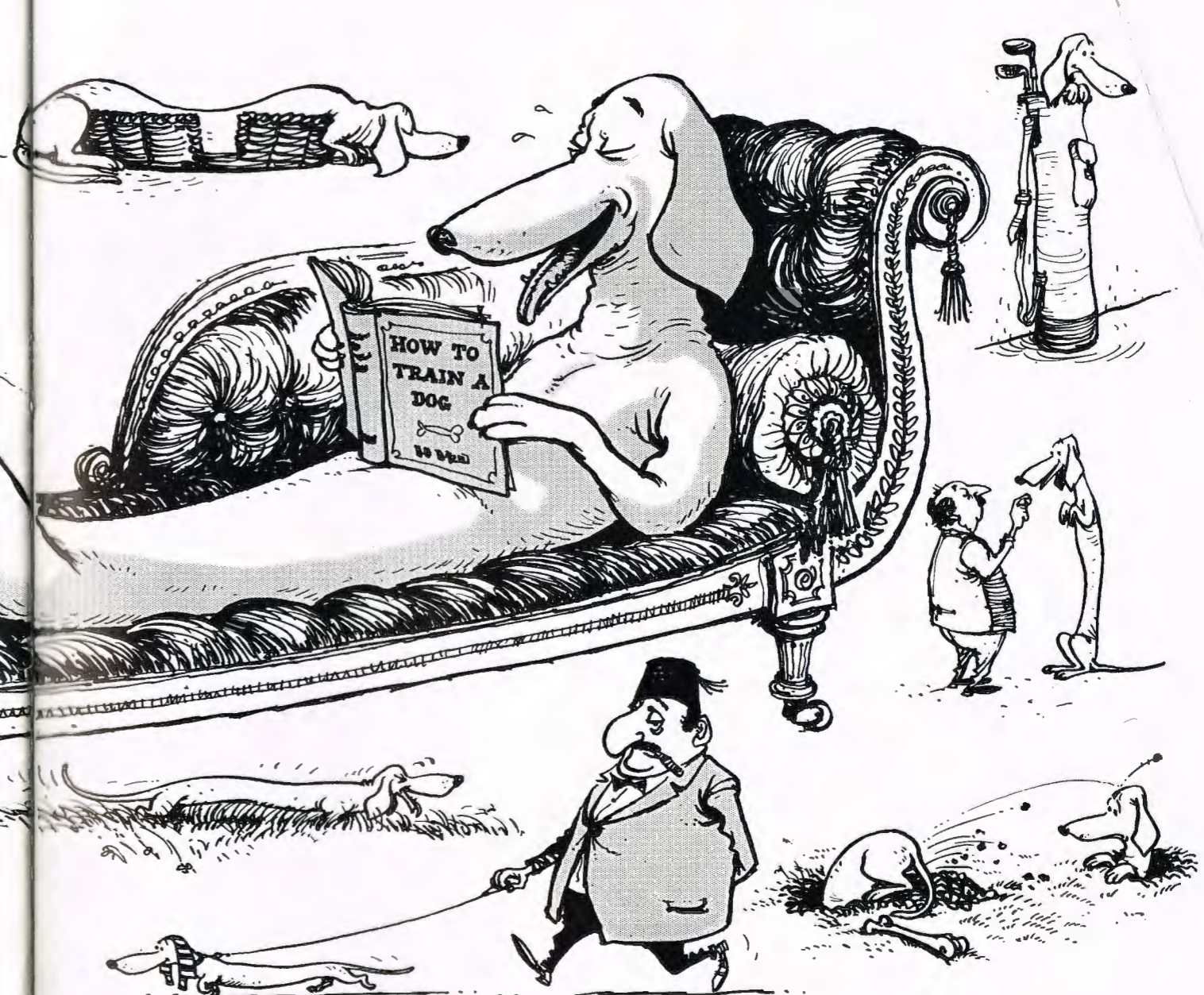
I would find scribbled notes in her handwriting like "£15 per pup = sixty quid per annum." But by the time



Hewison.

Mitzi became a young lady, as you might say, we had consulted dachshund owners about breeding and we got the same tale from all of them. It seems that the little twerps are so helpless when it comes to littering that their distracted owners spend many sleepless nights and, not infrequently, suffer the tragedy of losing their pets. That was enough for me. If that is the way normal dachshunds behave, then, if I know my Mitzi, she would be so contrary at the critical time that the overnight attendance of at least a specialist obstetrician and a veterinary surgeon would be called for. So she has been condemned to spinsterhood.

We took her with us on holiday this year to a nice cosy little hotel in Wales. It suited us fine, but it did not suit Mitzi—not to begin with, anyway—and she was very edgy



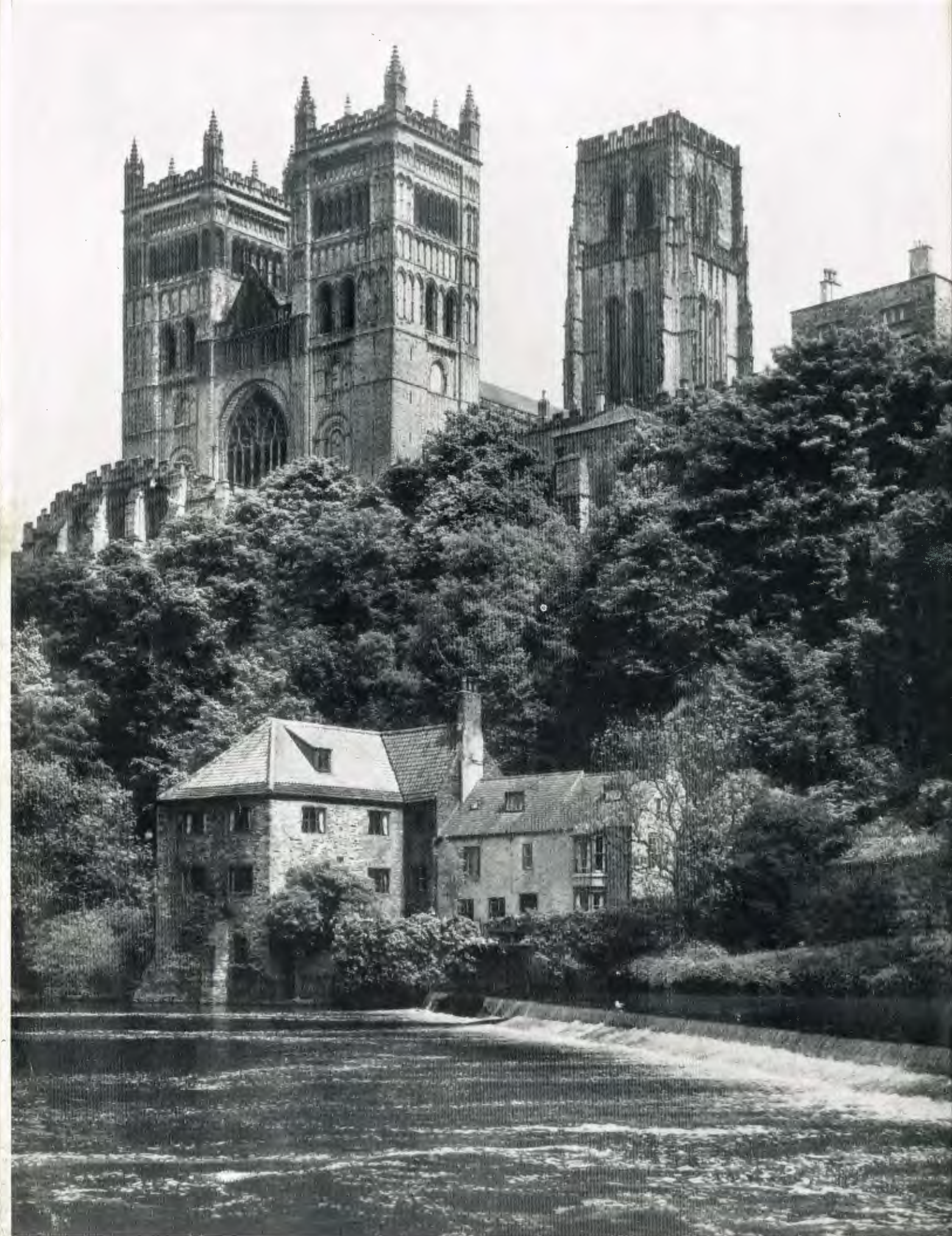
for a couple of days. In due course she settled down, and, by golly, we heartily wished she had not.

The reason why she settled down was because the little pinhead finally decided that the hotel was her own home, which made it a tricky business for anyone to enter the lounge or the bar when Mitzi was around. The crisis was reached when the proprietor, excellent man, came into the bar bearing a Scotch which he was presenting to me "on the house" and Mitzi made as if to nail him. I was incensed and deeply shocked. I spoke most harshly to her. Judith sulked with me for a whole day.

I recently had a bit of an eye-opener as to the status Mitzi has now attained in the home. During last summer I had a tiresome three months suffering from what seemed very like hay fever. Medical opinion was that I had developed

an allergy for something or other, probably chemical, and I was advised to submit myself to a general allergy test. I did, and I found it very interesting.

The specialist covers your forearm with scratches and then infects each of them with a variety of extracts from such dissimilar things as fish, household dust, dog hairs and what have you. Then he sits back and waits for one or other of them to blow up, and then he says "Ah, great fun!" Well, I did not react to any one of them, and when I returned home to an anxious family I told them so. They all heaved sighs of relief. I said "I suppose you were worried about whether I was allergic to Mitzi," and my dear wife replied "Yes, of course; we felt sure it *would* be Mitzi, but I'm so glad we don't have to fix you up in a shed in the garden."



Durham Cathedral

A. T. Winter, Nobel Division (Sabulite)